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UNITED STATES NAVY

MEDICAL NEWS LETTER

Vol. 44 Friday, 7 August 1964 No. 3

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Vol. 44 Friday, 7 August 1964 No. 3

Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

The issuance of this publication approved by the Secretary of the Navy on 4 May 1964.

SUBMARINE MEDICINE SECTION

Naval Submarine Medical Center Commissioned at New London

Introduction

July 1, 1964 marked a significant milestone in the history of submarine medicine. On that date, the Naval Submarine Medical Center was commissioned at the U. S. Naval Submarine Base New London, Groton, Connecticut, by order of the Honorable Paul H. Nitze, Secretary of the Navy. The commissioning ceremony was attended by RADM V. L. Lowrance USN, Deputy Commander Submarine Force Atlantic Fleet; RADM W. Welham MC USN, Assistant Chief of the Bureau of Medicine and Surgery; CAPT N. D. Gage USN, Commanding Officer, U. S. Naval Submarine Base New London; CAPT G. J. Duffner MC USN, Fleet Medical Officer, Atlantic Fleet; CAPT C. N. Waite MC USN, Commanding Officer, Naval Submarine Medical Center; and many other dignitaries and guests. RADM E. C. Kenney MC USN, the Surgeon General, was the principal speaker.

Commissioning Address
by
Rear Admiral Edward C. Kenney MC USN
Surgeon General

It is a great pleasure to participate in this most significant occasion. This day marks the realization of many hopes, and is the fruition of much labor and overall coordination. With the full cooperation and support of the Commander of the Submarine Force, Atlantic Fleet, the many problems inherent in the establishment of this Medical Center were overcome and today, we are gathered to dedicate it to the betterment of submarine medicine and to the people whom it will serve.

Although we have had medical officers trained in submarine medicine since 1931, it wasn't until 1943, just 21 years ago, that submarine medicine was established as a military specialty. At that time, a special submarine medical insignia was approved for submarine medical officers and the qualifications were established for eligibility to wear the insignia. Submarine medicine is considered to have "come of age" in 1947 with the formal establishment

of a Submarine Medicine Division in the Bureau of Medicine and Surgery, and the implementation of a formal training program. At that time, the submarine medical organization consisted of approximately five senior medical officers who rotated in the five senior billets. The remainder of the organization was composed of six to ten junior officers who ofttimes, upon completion of the training, either left the program or left the Navy.

The original training program consisted of twelve weeks indoctrination at the Naval School, Deep Sea Divers, in Washington–followed by six months at the Submarine School and Research Laboratory in New London. Prospective submarine medical officers attended the same school as the prospective line officers and actually spent approximately two-thirds of their time in training with them. While they were provided with a great deal of practical information concerning submarine operations, it could be described as "fringe" insofar as a medical officer's educational needs are concerned.

Since World War II, personnel especially trained in submarines have provided the medical support for all underwater operations in the Navy. Within the past ten years, however, there have been major developments which have emphasized the need for, and greatly increased the demands for medical officers trained in submarine medicine with their professional skills and advanced training in the fields of respiratory physiology, radiological health, and atmospheric hygiene.

The submarine service has become a highly intricate and complex organization, with current problems unknown in former years. The increased requirements for specially trained personnel are not limited to medical officers, but include Medical Service Corps officers and hospital corpsmen-and certainly, not among the least, scientists to pursue a research program with basic and applied projects closely integrated with the submarine medical programs.

The American Board of Preventive Medicine currently credits submarine, diving, and radiation medicine training as full-time formal training toward the eligibility requirements for certification in occupational medicine. The establishment of this Submarine Medical Center will provide billets in the future for "In-Plant Training" in this specialty, as required by the American Board. With the increasing number of submarine medical officers in off-cruise status in the area, there is a critical need and desirability for these officers to have the opportunity to practice clinical medicine. This can be provided at the Center. I am also confident that the prospect of future duty at the Center, where clinical, research, and teaching pursuits will be available, will be an attractive incentive for physicians to enter, and remain associated with, this field of Navy medicine.

The teaching programs will benefit immeasurably through coordination and integration with clinical and research facilities which will be effected by the Center arrangement. The cohesion of the staffs of the laboratory, the school, and the station hospital will broaden their scope of service and more effectively capitalize on the talents and experience of these highly trained personnel. The unified command is expected to bring about operating economies,

better utilization of skilled medical personnel by creating a "pool" of these persons available for all the functions of the Center, and to make possible more effective administration.

Another facet, which should hit closer to home, is the dependent health care. If the men of the fleet are to operate efficiently, their health, as well as that of their dependents, must be zealously guarded. With five Squadrons homeported in New London and the additional medical officers available in the POLARIS Program, there is every reason to believe that the medical needs of our personnel and their dependents will be provided for more effectively under our concept of the Submarine Medical Center.

This is one more significant step in the maturity of submarine medicine. There has been much groundwork preceding this event. Sedulous effort on the part of so many who have made this event possible should be duly acknowledged. Today's activities are the result of many months of viewing, reviewing, analyzing, criticizing, study groups, liaison groups, official conferences, and unofficial pros and cons, by personnel of the Office of the Inspector General, the Commandant, THIRD Naval District, the Submarine Base; the Research Laboratory; the Station Hospital; the Submarine School; the Deep Sea Divers School; BUPERS; BUSHIPS; - numerous activities within BUMED; - and others - too many to recall and mention by name.

I would like to express my sincerest appreciation for the contributions made by all who have participated in this project. The means to this end were quite obviously the result of a thorough staff study, conscientiously conducted with concerted effort to contrive the best possible solution. We know that there will be changes to the present organization of this Center, -all with a view to improvement in its operation. However, we are today establishing the nucleus for a "Home Base" for submarine medical personnel with training for submarine duty as one of its primary missions. It will also provide improved courses of instruction and facilitate expansion in case of emergency. The assignment of qualified submarine medical officers, who may also be qualified in a clinical specialty, to a medical facility that supports submarine personnel should be beneficial to the morale of the officers and enlisted men and their dependents.

We can look forward to more recognition and publicity in this field of operational medicine with the Submarine Medical Center establishment, thereby increasing the number of medical officers, hospital corpsmen, and others who volunteer for the submarine program. An increase in reenlistments and a greater retention of medical officers in the program can then be anticipated. While reducing overall costs, the Center will provide better service to the men in the submarine force and to their dependents, will be professionally satisfying to the medical officers; and should be a contributing factor in the advancement of the Navy's undersea capability.

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Submarine Medicine Program

Submarine medicine is the military medical specialty which supports all underwater operations in the Navy. This includes medical services to the crews of all types of submarines as well as medical care of deep sea divers and underwater swimmers. The practice of submarine medicine can be considered a combination of general practice and of occupational medicine.

The training course in Submarine Medicine is conducted at the Submarine Medical Center, Naval Submarine Base New London, Groton, Connecticut. The six months course convenes twice yearly–in August and February. The cirriculum includes Underwater Pressure, and Respiratory Physiology; Radiobiology; Environmental Health, Toxicology; and familiarization and orientation with submarine and diving operations.

Upon completion of this training course, medical officers are assigned to billets within the submarine force. In most instances, it is possible to give favorable consideration to the desires of each graduate. Although the submarine medicine organization is a small one, the program is experiencing a rapid growth at this time. The table on page 7 reflects the current submarine billets for medical officers.

The Navy's highest priority operation is the Fleet Ballistic Missile or POLARIS Submarine Program. Each of these submarines has two complete crews. While one crew is on patrol in the submarine, the other crew remains ashore. A medical officer is assigned to each crew because of the nature of the patrols.

A certain number of medical officers may anticipate serving as Squadron medical officers. In this capacity, the medical officer has overall responsibility for the medical care of approximately 2000 officers and men. Submarine Squadrons are located at New London, Connecticut; Norfolk, Virginia; Charleston, South Carolina; Key West, Florida; San Diego, California; Pearl Harbor, Hawaii; Rota, Spain; and Holy Loch, Scotland.

Medical officers are also assigned to the Naval School, Deep Sea Divers and the Navy Experimental Diving Unit, Washington, D. C., to teach the medical aspects of diving and conduct research in underwater physiology. Submarine Medical Officers also serve with Underwater Demolition Teams.

For those who have gained experience in the operational field, billets are available at the Submarine Medical Center. The Center consists of a research laboratory, a hospital, and a school. Research investigators in all aspects of submarine medicine are needed at the laboratory; clinicians in all major specialties are needed at the hospital;and teachers for the medical officers and hospital corpsmen courses are required at the school. Experienced Submarine Medical Officers are urged to apply for further post-graduate or residency training.

Submarine Medicine offers excellent opportunities in all areas of medicine. Through its various possibilities, it provides additional training not otherwise available and permits doctors to better perform their military duties and enhance their professional futures.

Submarine Billets for Medical Officers*

	Lt.	LCdr.	Cdr.	Capt.	Total
Forces Afloat					
Polaris	82				82
New Construction	5				5
Submarine Tenders	10				10
Underwater Demolition, SEAL	3				3
Torpedo Stations		2			2
Submarine Squadrons		14			14
Submarine Flotillas			5		5
Submarine Forces				2	2
SuBase Dispensary (Hawaii)		3	1		4
Submarine Medical Center			1	1	2
Submarine School		4	2	1	7
Station Hospital		6	5	1	12
Research Laboratory		3	1	1	5
E. D. U. & N. S. D. S. D. (Experimental Diving Unit and Divers' School)		2	2		4
NMRI (Naval Medical Research Institute)		2	1		3
AFRRI (Armed Forces Radiobiology Research Institute)		1			1
BUREAUS			2	4	6
TOTALS	100	37	20	10	167

* Billets available, but not necessarily filled at all times.

Lt.	LCdr.	Cdr.	Capt.	Total

Anyone desiring further information regarding the Submarine Medicine Program should address inquiries to CDR John H. Schulte MC USN, Director, Submarine Medicine Division, Bureau of Medicine and Surgery, Washington, D. C. 20390.

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Metabolic Pathways of Bilirubin

LT Joseph T. Brierre Jr. MC USN*, U. S. Navy Medical Laboratory
Quarterly 2(1): 2-5, January 1964.

Understanding current concepts of bilirubin formation and excretion is important in properly interpreting certain abnormal states of the reticuloendothelial system, liver, extrahepatic bile-carrying channels and the alimentary canal.

Degradation and destruction of erythrocytes result in the formation of hemoglobinated fragments and, finally, of free bilirubin. Free bilirubin is conjugated with glucuronic acid in the liver and excreted in this form of the water-soluble glucuronide. Figure No. 1 presents current basic concept as to the site of formation of the various hemoglobin breakdown products which form bilirubin and its biochemical successors.

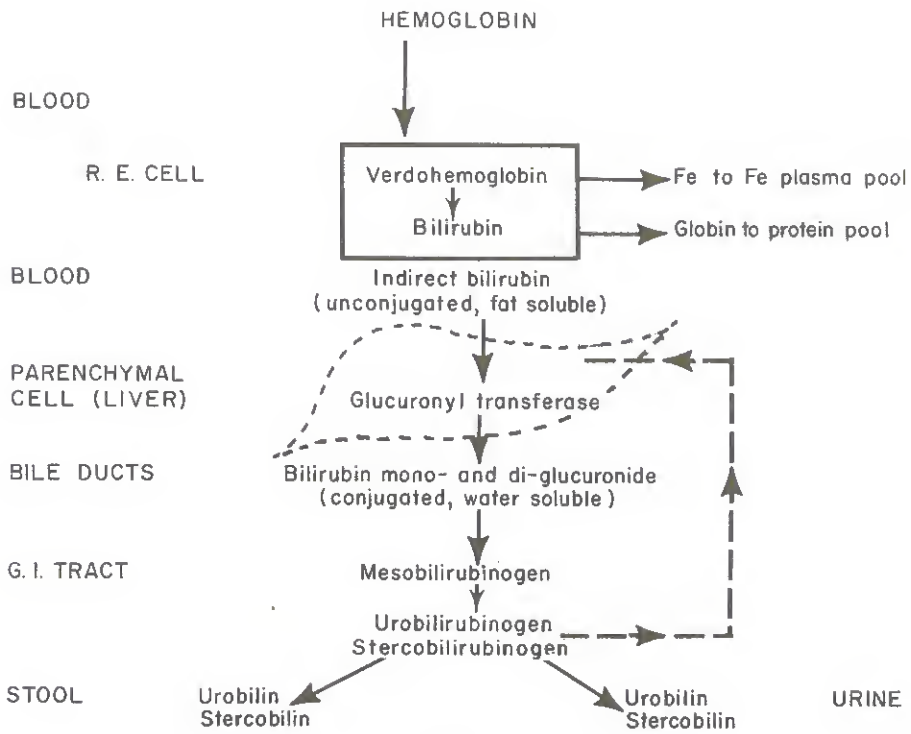

Figure 1.

Hepatic conjugation of bilirubin with glucuronic acid is limited by:

1. The amount of available glucuronic acid donor: uridine diphosphoglucuronic acid and,
2. The availability of the conjugating enzyme, glucuronyl transferase. Normally, conjugated bilirubin present in blood represents the diglucuronide form.

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* Fourth Year Resident in Pathology, U. S. Naval Medical School, NNMC, Bethesda, Md.

COMMON TESTS OF LIVER FUNCTION

TEST	PRINCIPLE	NORMAL	PRECAUTION	I	II	III	IV	
Bilirubin (Direct) (total)	Aromatic amines plus diazonium salts + Azo dye	0.25 mg%(d) 1.5 mg%(t)	Run within 2 hrs. of collection	+	+	+	+	
Urobilinogen	Tetrapyrroles plus Ehrlich aldehyde —— red color	0-2 mg/24hr, (U) 50-250 mg/25 (S)	Antibiotics alter Porphobilinogen	+	+	?	0	
Cephalin flocculation	Altered serum protein flocculates cephalin-cholesterol suspension	0 at 24 hrs. 0-2 plus at 48 hrs.	May be normal in severe liver disease	+	+	+	0	
Thymol turbidity	Altered protein causes turbidity of thymol buffered solution	0-4 units	Same as above Phospholipid	+	++	+	0	
Alkaline phosphatase	Hydrolyzes monophosphate ester at pH 9-10	Bodansky- 1-4 King-Armstrong - 3-13 Bessy-Lowry (1.8 times Bodansky)	Elevated in other than liver disease	0	0	0	++	
Cholesterol cholesterol: ester	Lipid extraction and digitonin ppt	150-250 mg% 60-75% of total	Inaccurate methods Wide normal range	0	0	0?	0	
S G O T	Transamination: amino from aspartic to alphaketo glutaric acid	10-33 u/ml serum	Non-specific	+	+	+	0	
S G P T		3-35 u/ml serum	More indicative of liver disease	+	+	+	0	
BSP	Dye excretion through metabolic pathway of bilirubin	0-5% retention of injected dye at 45 min.	Inaccurate in icteric states	+	+	?	0	

Code: I -Detection of liver disease without jaundice FIG. II
II -Detection of residual disease following case of hepatitis
III -Following known hepatic disease
IV -Evaluation and or diagnosis of biliary tract disease

Recommend: Cohn and Kaplan - Hepatic Function Tests - Miller's Textbook of Clinical Pathology
Inglefinger - Differential Dx. of Jaundice - Disease of the Month

Other relatively regular physiologic constants influencing bilirubin formation are (calculated for a 70 kilogram male):

1. Average erythrocyte life span - 120 days.
2. Therefore, the daily average of red blood cells destroyed is:
   $\frac{100\%}{120 \text{ days}} = 0.83\%/\text{day}$
3. One gram of hemoglobin yields 35 mgm of bilirubin.
4. A 70 kilogram body normally contains 750 grams of circulating hemoglobin and degrades 6.25 grams/day.
5. This hemoglobin produces 220 mgm of bilirubin/day.
6. Unconjugated bilirubin circulates approximately 1-1 1/2 hours before it is wholly removed from the circulation.

Figure No. 2 (see page 9) presents, in tabular form, some of the more commonly performed laboratory tests of liver function with the normal values, some precautions to be observed in their use and a key to interpretation.

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Renal Hypertension

B. G. Clarke MD*, Associate Professor of Urology, Tufts University School of Medicine and J. Hartwell Harrison MD**, Clinical Professor of Genito-Urinary Surgery, Harvard Medical School. Reprinted by permission of the authors from "Diseases of the Urinary and Genital Organs" (A Review and Bibliography) - pps 125-130, Boston, Mass., 1960.***

There are two principal endocrine pathways for the development of hypertension in the mammalian organism. One is primarily neurogenic, mediated through the hypothalamic-pituitary-adrenal axis and the other is renal.

The role of the hypophysis in production of hypertension is still controversial. Hypothalamic chemo-receptors, the pituitary antidiuretic hormone, and pituitary corticotrophins may affect the elaboration of the adrenal salt-retaining hormone aldosterone and of other adrenal steroids. These may influence the generalized vasoconstriction leading to hypertension.

The relationship between the kidneys and hypertension has been recognized for some time. As early as 1898 it was found that an extract of animal kidneys (renin) is capable of inducing a pressor effect when injected intravenously into animals. More recently, it has been shown that renin is not directly pressor but its effect is the result of reaction with a substrate in the plasma which has been known as hypertensin or angiotonin. This has more recently been re-designated angiotensin, identified as a tetradecapeptide, and synthesized. An enzyme normally present in the kidney, hypertensinase, regulates the inactivation of angiotensin according to the homeostatic requirements of the body.

Efforts to induce hypertension experimentally were consummated by Goldblatt's work between 1928 and 1934. He showed that carefully controlled

constriction of one or both renal arteries was capable of inducing chronic hypertension in dogs and, after a lapse of time, arteriolar sclerotic lesions similar to those found in the human disease. Hypertension appears to be a necessary condition for development of arteriolar sclerosis, which is almost always found in persons with essential hypertension. Selye partly occluded the aorta in rats, above one kidney and below the other, and found vascular lesions confined to areas above the constriction where hypertension existed, but not below it in the normotensive parts of the body.

Goldblatt's phenomenon is probably explained by the fact that renin is produced continuously in small quantities by the normal kidney but its production is increased under many conditions of renal ischemia. It has been shown that excessive production of renin occurs when renal arterial pressure is reduced enough to decrease or arrest glomerular filtration but not reduced to the point where tubular cells are no longer viable. Renal parenchyma will remain viable at pressures below those required for filtration. Probably tubular cells, under these conditions, liberate excessive quantities of renin, to produce hypertension.

Important evidence of the renal origin of hypertension is that it cannot exist without some functioning renal tissue. A patient whose only kidney was inadvertently removed was kept alive for 57 days by external dialysis, but hypertension did not develop in spite of marked rise in serum epinephrine and norepinephrine.

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1. The Renal Origin of Hypertension. Goldblatt, H. : Springfield, Ill., Charles C. Thomas, Publisher, 1948, pp 126.
2. Experimental Renal Hypertension. Page, I. H. ; and Corcoran, A. C. :Springfield, Ill., Charles C. Thomas, Publisher, 1948, pp 72.
3. The Current Status of the Hypertension Problem. Kahn, J. R. : Am J Clin Path 76: 521-523, May 1956.
4. The Synthesis of a Tetradecapeptide Renin Substance. Skeggs, L. T. ;Lentz, K. G. ; Kahn, J. R. ;and Shumway, N. P. : J Exp Med 108:283-297, September 1, 1958.

Clinical considerations. In human beings, hypertension is known to result from primary lesions of the renal vessels, from the nephritides, from congenital renal anomalies, and from acquired obstructive uropathies. These factors may be outlined as follows:

I. Primary vascular lesions(major vessel or branches, unilateral or bilateral)
   A. Embolus with infarction
   B. Renal vascular thrombosis
      1. Spontaneous
      2. Traumatic
      3. Aneurysm
      4. Renal arterial stenosis
      5. Intimal proliferation and fibrosis of renal vessels or aorta at renal arterial orifices

I. Primary vascular lesion
   C. Extrinsic compression of renal artery by tumor
II. Nephritides
   A. Pyelonephritis
   B. Glomerulonephritis
III. Congenital anomalies
   A. Polycystic disease
   B. Hydronephrosis
   C. Megaloureter
   D. Stenosis of vesical neck
   E. Hypoplasia of the kidneys
IV. Acquired obstructive uropathy
   A. Prostatic hyperplasia
   B. Nephrolithiasis
   C. Urethral stricture
   D. Extrensic ureteral obstruction due to tumor

It has become apparent that if the cause of renal hypertension can be removed early enough in the course of the disease, arteriolar sclerosis resulting from hypertension (as observable in the eyegrounds and reflected in renal function) can be largely or completely reversible. If one kidney is ischemic and causing hypertension the other need not be absolutely normal for recovery to follow removal of the ischemic organ. Leukocytosis, polyuria, albuminuria, and impairment of urinary concentrating ability may all be a part of the reversible form of the syndrome: Surgery has three potential roles in the treatment of renal hypertension: (1) The correction of obstructive uropathies according to usual indications; (2) The resection of ischemic renal tissue provided that only one kidney, or part of a kidney is involved in vascular obstruction, infarction, nephritis, or anomaly; or (3) The surgical reconstruction or replacement, of an obstructed renal vessel or vessels. Under these conditions, provided that arteriolar sclerosis in the remaining renal cortex has not advanced to an irreversible degree, sustained remission of hypertension may be anticipated in the majority of cases.

In the selection of patients for surgical treatment a number of technics are undergoing evaluation. Winter has introduced measurement of renal radioactivity after intravenous injection of radioactive diodrast as a screening test. Differential measurement of parameters of renal function by way of cystoscopically introduced ureteral catheters, has been studied by Howard and others. Urine volume, glomerular filtration rate, sodium excretion, osmolality, urea clearance and other tests are useful in this regard but are not absolute diagnostic criteria. Bilateral constriction of the major renal arteries or segmental infarction of one kidney, for example, will not necessarily be reflected in a difference in function between the two kidneys yet hypertension may be curable by repair of the vessels or by partial nephrectomy.

Renal angiography (aortography) provides a more accurate definition of surgically remediable ischemic lesions of the kidneys. It is indicated, according to Poutasse and Dustan, in hypertensive patients under the following conditions: (1) When pyelograms show disparity between the two kidneys in size, structure, or function, (2) In patients with nonfamilial hypertension of

recent onset with rapid progression into the malignant phase, (3) When hypertension with no other evident cause develops in a patient less than 35 years of age; and (4) When hypertension develops or becomes worse following an attack of flank pain which might represent infarction of part of the kidney.

When a vascular lesion is thus disclosed, treatment may consist, depending upon circumstances, of endarterectomy, renal arterial or aortic reconstruction or grafting, spleno-renal arterial anastomosis, or segmental or total nephrectomy. About two thirds of patients undergoing such treatment may anticipate cure.

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* Doctor Clarke's current address is 1224 Jefferson Bldg., Peoria, Illinois 61602. He holds the rank of Commander in the Medical Corps of the Ready Reserve, and is engaged in the private practice of Urology. He served as a medical officer on active duty with the Navy during World War II and the Korean Conflict. We are indebted to both authors for this opportunity to republish their material.

** Doctor Harrison holds the rank of Lt. Col. MC AUS, Retired.

*** Doctors Clarke and Harrison had a thousand copies of this publication made and distributed to students and house officers at Harvard and Tufts. The supply is now exhausted. Through special permission of the authors, it is planned to republish in future issues of the Medical News Letter, selected papers from this excellent 137-page document.

—Editor

Suggested Reading List:

Surgical Management of Hypertension due to Renal Artery Occlusion. Trippel, O. H. : Surg Clin of N. Amer 40: 177-189, February 1960.

Hypertension Due to Unilateral Renal Disease: With Report on Functional Test Helpful in Diagnosis. Connor, T. B. ;Berthrong, M. ;Thomas, W. C. ; and Howard, J. E. : Bull Johns Hopkins Hosp 100: 241-276, July 1957.

Results of the Radioisotope Renogram and Comparison with Other Kidney Tests among Hypertensive Persons. Winter, C. C. ;Maxwell, M. H. ;Rockney, R. E. ; and Kleeman, C. R. : J Urol 82: 674-680, December 1959.

Diagnosis of Hypertension Due to Occlusions of the Renal Artery, Margolin, E. G. ;Merrill, J. P. ; and Harrison, J. H. : New England J Med 256: 581-588 March 28, 1957.

Occlusion of a Renal Artery as a Cause of Hypertension. Poutasse, E. F. : Circulation 13: 37-48, January 1956.

Arteriosclerosis and Hypertension. Indications for Aortography in Hypertensive Patients and Results of Surgical Treatment of Obstructive Lesions of Renal Artery. Poutasse, E. F. ; and Dustan, H. P. : JAMA 165: 1521-1525, November 23, 1957.

(The reading list will be continued in the next issue of the News Letter)

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MISCELLANY

Announcement of Aerospace Medical Courses

Course	Class	Inclusive Dates	Deadline Date to Apply	Quota
Medical Support for Missile Operations	64-C	30 Nov - 11 Dec 1964	Immediately	2
	65-A	8 Feb - 19 Feb 1965	14 Dec 1964	3
	65-B	1 Mar - 12 Mar 1965	4 Jan 1965	3
	65-C	7 Jun - 18 Jun 1965	12 Apr 1965	2
Medical Support for Space Flight	65-A	10 May - 3 Jun 1965	15 Mar 1965	6

The above scheduled courses will be conducted by the U. S. Air Force Medical Service at the School of Aerospace Medicine, Brooks Air Force Base, Texas. SECRET Security Clearance is required on all candidates approved for attendance.

The presentation of Medical Support for Missile Operations is designed to provide selected officers of the Medical Services of the Armed Forces of the United States with essential fundamental knowledge for the organization and implementation of a medical support program at a missile site. Instruction is presented to familiarize the graduate with operational weapons systems and with the various toxic substances and hazardous conditions associated with missile operations. A field trip is an integral part of this course.

The purpose of the course, Medical Support for Space Flight is to familiarize selected physicians of the Department of the Army, Navy, and Air Force with the physical and chemical aspects of the upper atmosphere and space and the biomedical impact of these factors on man, and to permit active participation in medical support of future man-in-space programs. Prerequisites include: (1) Must be a Regular or Career Reserve Medical Officer; (2) Must have satisfactorily completed the course in Aerospace Medicine, Primary, as conducted by the United States Air Force, or the Basic Course for Flight Surgeons as conducted by the United States Navy; (3) Must be actively engaged in the teaching or practice of Aviation Medicine or conducting aeromedical research. A five-day field trip to a missile range is an integral part of this course and clothing suitable for flying will be needed.

Requests should be forwarded in accordance with BUMED INST. 1520.8A of 29 June 1964, and comply with deadline date as indicated above. All requests

must indicate that a security clearance of SECRET has been granted to the officer requesting attendance. —Training Branch, Professional Div., BuMed.

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NLM Bibliographies Available

Facsimile copies of typewritten lists of selected references on the following subjects are available on request from the Reference Section of the Reference Services Division, National Library of Medicine, U. S. Department of Health, Education, and Welfare, Bethesda, Maryland 20014.

1. Appendiceal Lithiasis (85 references)
2. Chymopapain (11 references)
3. Fatigue Countermeasures (44 references)
4. Hematomas of the Abdominal Wall Secondary to Coughing (21 references)
5. List of U. S. State Medical Society Journals
6. Myocardial Pain Syndrome (20 references)
7. Nutritional Factors in Mental Deficiency (22 references)
8. Orthopedic Metallic Implants (17 references)
9. Subcutaneous Toxicity of Aluminum (8 references)
10. Toxoplasmosis in Mental Illness (29 references)
11. Ulcers of the Jejunum and Ileum (14 references)

—From the National Library of Medicine NEWS XIX(6): 3-4, June 1964.

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Thirteenth Annual Armed Forces Seminar on Obstetrics and Gynecology

The Air Force will act as host for the subject seminar, which will be held at the U. S. Air Force Hospital Andrews, Andrews Air Force Base, Maryland, 26-29 October 1964.

All surgeons and residents in this specialty, on active duty are eligible to attend. Only a limited number of officers can be authorized to attend the seminar on travel and per diem orders chargeable against Bureau of Medicine and Surgery funds. Eligible and interested officers who cannot be provided with travel orders to attend at Navy expense may be issued Authorization Orders by their Commanding Officers following confirmation by this Bureau that space is available. Requests should be forwarded via chain of command, in accordance with BUMED INST. 1520.8A. NOTE: The deadline date for receipt of requests in this Bureau is 20 August 1964.

—Training Branch, Professional Div., BuMed.

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Retirement of RADM Chrisman Deputy and Assistant Chief of BuMed

Retirement ceremonies were held on 30 June 1964, in the Office of the Surgeon General of the Navy, for RADM Allan S. Chrisman, Medical Corps, U. S. Navy, then Deputy and Assistant Chief of the Bureau of Medicine and Surgery.

Attending the ceremony, during which Admiral Chrisman received the BUMED Certificate of Merit from the Surgeon General, RADM E. C. Kenney, were his many friends and fellow officers of the Bureau.

Admiral Chrisman was placed on the Retired List of the U. S. Navy after more than 34 years of continuous service. He had served as Deputy and Assistant Chief, BUMED, since April 24, 1961.

Rear Admiral A. S. Chrisman
Official U. S. Navy photograph, Naval Medical School, Bethesda, Md. 20014

Dr. Chrisman graduated from the University of North Carolina, with a Bachelor of Science degree and received the degree of Doctor of Medicine from Harvard Medical School in 1930.

His military career included duty at the Naval Hospitals, Philadelphia, San Diego, Washington, D. C., Parris Island, Bethesda, Bainbridge, Newport, Aiea Heights, and Camp Lejeune; duty aboard the USS S-4, USS BEAVER, USS RANGER, USS PINKNEY; duty at the Submarine Base, New London, and was a student, for the senior course, at the Naval War College, Newport, R. I. In the early years of World War II he saw action in the South Pacific Area and served as Base Medical Officer at the Advanced Naval Base, Tulagi, Solomon Islands, where he was in charge of the Tulagi-Florida Medical Facilities. In January 1944, he was Assistant Officer in Charge of the Medical Research Laboratory, New London. As such he assisted in submarine personnel selection for Commander Submarines, Atlantic. He was awarded a Letter of Commendation, with Ribbon, from the Commander-in-Chief, U. S. Atlantic Fleet, "For meritorious service as Assistant Medical Officer in Charge of the Medical Research Department, U. S. Submarine Base, New London, Conn., during the period from March 1944 to February 1945. "In September, 1952, he assumed duties as Director, Personnel Division, BuMed. On July 31, 1956, he was ordered to San Diego, California, as Commanding Officer of the Naval Hospital there, and in December 1958 was assigned additional duty as Eleventh Naval District Medical Officer with Headquarters at San Diego.

He is a member of the American Medical Association, a Diplomate of the American Board of Preventive Medicine and a Fellow of the American

College of Preventive Medicine. He is also a member of Phi Kappa Sigma, Phi Chi, and Phi Beta Kappa fraternities and the Masonic Order.

He is married to the former Eleanore Krekeler of Montclair, New Jersey, and has three children, Caroline, Allan and Jane (Mrs. Albert McBride). Admiral Chrisman has accepted employment as Deputy Director of Medical Services, American National Red Cross, Washington, D. C. He will continue to reside at his present address in Bethesda, Maryland.

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RADM Brown Assumes Duty As Deputy and Assistant Chief of BuMed

On 1 July 1964, Rear Admiral Robert B. Brown MC USN, became Deputy Surgeon General and Assistant Chief of the Bureau of Medicine and Surgery on orders from the Chief of Naval Personnel. He had served since 1 August 1963 as Assistant Chief of BUMED for Personnel and Professional Operations.

Rear Admiral R. B. Brown
Official U. S. Navy photograph, Naval Medical School, Bethesda, Md. 20014

Admiral Brown brings to his new assignment an illustrious record of achievements in behalf of the advancement of professional and administrative matters within and outside the Medical Department of the Navy. Prior to his Bureau service some of his important duties were:

Commanding Officer, National Naval Medical Center, Bethesda, Md.

Commanding Officer, U. S. Naval Hospital, NNMC, Bethesda, Md.

Chief of Surgical Service, U. S. Naval Hospital, Bethesda, Md.

Clinical (Adjunct) Professor of Surgery, Georgetown Univ. School of Medicine.

Chief of Surgical Service and Chief of Professional Services, USS REPOSE (1950-1951)–for which Admiral Brown was awarded the Bronze Star Medal. The citation states in part: "For meritorious service as Chief of Professional Services and as Chief of Surgical Service in the Naval Hospital on board the USS REPOSE, in connection with operations against enemy aggressor forces in Korea from September 20, 1950 to July 12, 1951. Throughout this period, CAPT Brown rendered outstanding services to his patients and directly supervised the surgical treatment of all casualties admitted to his section. Exercising exceptional professional skill and a thorough understanding of the scope and importance of his assignment, he was largely responsible for the excellent

care given to the more than 8000 patients admitted to the hospital and was greatly instrumental in saving the lives of many of the stricken men."

Chief of Surgery, USS TRANQUILLITY, 1945

Chief of Surgery, U. S. Naval Hospital, Annapolis, Md., 1943

Duty aboard the USS SOLACE, 1943

Having obtained the B. S. degree from Allegheny College, Meadville, Pennsylvania (1925-1929) and his Doctor of Medicine degree from the University of Pennsylvania (1929-1933), Doctor Brown received comprehensive graduate training at the University of Pennsylvania in General Surgery, and one year in Thyroid and Neurosurgery. During the period 1935-1941 he also served variously as Assistant Instructor in Surgery at the Medical School there, Instructor in Surgery, and Assistant in Surgery at the University of Pennsylvania, Philadelphia General, Presbyterian and Doctors' Hospitals. In 1941 he received his Doctor of Science (in Surgery) degree from the University of Pennsylvania Graduate School of Medicine. During the period 1933-1935 he interned at the Hospital of the University of Pennsylvania.

In addition to the Bronze Star Medal, Rear Admiral Brown has the following service medals: Asiatic-Pacific Campaign Medal with one star; American Campaign Medal; World War II Victory Medal; National Defense Service Medal; Korean Service Medal; United Nations Service Medal; Expert Rifleman Medal and the Expert Pistol Shot Medal. He also has the Korean Presidental Unit Citation.

Dr. Brown is a Fellow of the American College of Surgeons and a Diplomate of the American Board of Surgery. He is a member of the Philadelphia County, the Pennsylvania State and American Medical Associations; the Society of University Surgeons; the American Surgical Association; the International Surgical Society; the Eastern Surgical Association; the Society of Vascular Surgery; the Southern Surgical Association; the American Association for the Surgery of Trauma; and Associate Member, Clinico-Pathological Society, Washington, D. C. and Philadelphia Academy of Surgery. In 1962 he received an honorary Doctor of Science degree from Allegheny College, Meadville, Pennsylvania.

His official home address is 704 Chestnut Street, Meadville, Penna. He is married to the former Jane Richardson of Pitman, New Jersey, and has a daughter, Mrs. Joan Brown Cox of Indiana.

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Notice Concerning Future Procurement of NAVMED P-5040 - "Code for Use of Flammable Anesthetics" (Safe Practice for Hospital Operating Rooms). The current supply of subject publication in BuMed is exhausted. In consideration of the small (50¢) cost involved, and since this is a commercial copyrighted document, it is felt that all customers should procure their required needs direct from its source—National Fire Protection Association, International, 60 Batterymarch Street, Boston 10, Massachusetts. When referenced instruction* is revised, NAVMED P-5040 will be deleted from the listings of NAVMED P-publications. —Administrative Division, BuMed. * BUMEDINST. 5604. 1E

FROM THE NOTE BOOK

CAPT Phillips Receives Distinguished Service Medal

Captain Robert A. Phillips, Medical Corps, U. S. Navy, eminent U. S. Navy Doctor and Commanding Officer of the Naval Medical Research Unit #2 was awarded the Distinguished Service Medal on 2 July 1964, at his Headquarters in Taipei, Taiwan.

Appropriately, the widely known Navy Research specialist had returned to Taipei from the Philippines less than two hours before the presentation. He had been conferring in Manila with medical authorities on cholera - one of the many diseases he has been fighting for years.

Vice Admiral Charles L. Melson USN, Commander of the U. S. Taiwan Defense Command, representing President Lyndon B. Johnson, presented the medal to Captain Phillips, as the doctor's staff of more than three hundred viewed the ceremony. In reading the citation, Admiral Melson stressed its description of Captain Phillips' "Exceptionally meritorious service to the Government of the United States."

The citation heralded the Captain as being responsible for establishing and directing NAMRU-2 in its activities in the field of research and treatment of tropical diseases and medical disorders in the Western Pacific Area.

It also called attention to his "skillful direction of new methods for field treatment of cholera which were developed and successfully applied to quickly bring under control serious outbreaks of this disease in East Pakistan, the Philippines, Korea and Vietnam. His work in directing the development of "a vaccine which promises ultimate control of Trachoma," and his invaluable research on parasites in man and animals in North Borneo, as well as his extensive study of encephalitis in Indonesia were mentioned.

The award lauded Captain Phillips for his brilliant leadership, professional skills and untiring efforts during the past eight years, in combating and bringing under control the diseases which once threatened members of the Armed Forces and plagued populations of friendly Asian countries.

By his loyal devotion to duty, and through his practice of the People to People Program in each country he has visited, the Doctor has rendered valuable and distinguished service and has contributed greatly to the advancement of medical science, the well being of populations of friendly Asian countries, and the fostering of good relations between the United States and Nations in the Western Pacific Area.

This latest military honor adds another entry to the navyman's school of recognition. Among the Doctor's numerous citations are included the Republic of China's Cloud and Banner Award and the 1962 Stitt Award for outstanding achievement in medical research. He is also a member of the Order of the British Empire (Military). —From TIO, Navy Department, Washington, D. C.

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American Board Certifications

American Board of Internal Medicine
LCDR William F. Spence MC USN
(Subspecialty of Pulmonary Disease)

American Board of Obstetrics and Gynecology
LCDR Patrick E. Golden MC USN
LCDR John R. Lukas MC USN
LCDR Robert B. Small MC USN

American Board of Orthopaedic Surgery
LCDR Frederick George MC USN

American Board of Pediatrics
LT David W. Bailey MC USN
LT Royal A. Smith MC USN
LCDR William Martin Bason MC USN
LCDR Luther C. Hansbarger MC USN
LCDR Gerald P. Largent MC USN

American Board of Preventive Medicine
CDR Frank H. Austin Jr. MC USN
(in Aviation Medicine)
CDR Benjamin F. Gundelfinger MC USN

American Board of Surgery
LCDR James L. Beeby MC USN
LCDR William J. Cavin Jr. MC USN
LCDR Mitchell Mills MC USN
LCDR Ernest E. Weinand MC USNR

American Board of Thoracic Surgery
LCDR Donald M. Hopkins MC USNR
CDR Robert J. Cales MC USN

American Board of Urology
LCDR John J. Donoghue MC USN

Dual Honor Bestowed Upon CAPT Bruce Canaga. CAPT Bruce L. Canaga, Jr. MC USN, was elected Governor for the Navy in the American College of Chest Physicians at their annual meeting in San Francisco in June. At the annual meeting of the AMA, also in San Francisco, he was elected Chairman of the Section on Military Medicine. Those desiring information on either of these two activities are invited to correspond with Dr. Canaga who is Assistant for Personnel Control and Planning in the Bureau of Medicine and Surgery.

New Cobalt 60 Unit at Oak Knoll

A new Cobalt 60 Therapy Unit was dedicated at U. S. Naval Hospital, Oakland, on 22 June 1964 by RADM Edward C. Kenney, Surgeon General of the Navy. The new unit, which Admiral Kenney was instrumental in obtaining for the hospital, is part of the gradual modernization of the hospital's Radiology Service. It is the only cobalt unit in use among military installations in the area and will be available for treatment of personnel of all branches of the armed services and their dependents.

With the opening of the new unit, Oak Knoll offers high energy radiation therapy for cancer patients. The gamma rays given off by radioactive cobalt are used in the treatment of deep-seated malignant tumors. The rays come from a circular piece of cobalt less than an inch in diameter, which has been made radioactive in an atomic pile and is now giving off powerful rays as it decays. The control panel operator opens a shutter to release rays "aimed" at the tumor.

Gamma rays are less dangerous to normal tissues in the tumor area, and higher radiation levels can be obtained within the tumor than with the conventional x-ray unit. Another advantage is that fewer side effects to the patient result from cobalt therapy than from treatment by conventional units.

In recent years Oak Knoll patients have received high energy radiation therapy through arrangements with Peralta Hospital, Oakland.

The cobalt unit is housed in a windowless concrete room whose thinnest part is 8-inch thick concrete reinforced with steel. In its thickest part the walls are 30 inches to insure radiation safety of the surrounding area. In a small outer room, the doctor and a qualified x-ray technician manipulate the control panel and watch the patient through closed circuit television and converse with him via a sensitive intercom system. —PIO, USNH, Oakland, Calif.

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Armed Forces Tri-Service Orthopedic Seminar

The Air Force will act as host for the subject seminar, which will be held at the U. S. Air Force Hospital, Keesler, Keesler AFB, Biloxi, Mississippi, on 22-25 September 1964.

All surgeons and residents in this specialty, on active duty are eligible to attend. Only a limited number of officers can be authorized to attend the seminar on travel and per diem orders chargeable against Bureau of Medicine and Surgery funds. Eligible and interested officers who cannot be provided with travel orders to attend at Navy expense may be issued Authorization Orders by their Commanding Officers following confirmation by this Bureau that space is available. Requests should be forwarded via chain of command, in accordance with BUMED INST. 1520.8A. NOTE: The deadline for receipt of requests in this Bureau is 15 August 1964. —Training Branch, Professional Div., BuMed.

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DENTAL SECTION

Misunderstanding of SnF_2 Policy
(Explanation)

Background. It has come to the attention of the Bureau of Medicine and Surgery that some readers have misunderstood a precaution stated in "Guidance on Clinical Use of Stannous Fluoride as a Caries Preventive Technic," U. S. Navy Medical News Letter 42(7): 22, 4 October 1963. The misunderstood precaution is excerpted:

"(4) The fluoride ion (and probably the tin ion also) will penetrate freshly cut dentinal tubules and cause acute pulp pathology; and therefore:
a. Prepared cavities (with open ended dentinal tubules), should not be exposed during clinical stannous fluoride treatment.
b. Stannous fluoride should not be used as an obtundant in freshly prepared cavities."

Explanation. Published reports have shown that a variety of agents will penetrate the tubules of freshly cut dentin. Among such agents, sodium fluoride applied to freshly cut dentin caused inflammation, followed by progressive degredation up to 80 postoperative days (J A D A 39: 670-682, 1949). For this reason, the careful operator will refrain from applying inflammatory agents such as the fluoride ion to freshly cut primary dentin for the same reason that he refrains from applying silicate cements without an intervening cavity liner. Diametrically opposite this line of reasoning, in existing carious lesions, the application of the fluoride ion has no known effect on the pulp. This was demonstrated in an unpublished study conducted at the Naval Medical Research Institute, associated with the Naval Medical Research Laboratory's "Clinical Evaluation of Stannous Fluoride in Preventive Dentistry." Histological examination of carious teeth, which had been treated with SnF_2, showed no recognizable pulpal condition which was not also present in the control carious teeth which had not been treated with SnF_2. This was interpreted to mean that the cavity debris, carious dentin, sclerotic dentin and/or reparative dentin had prevented the fluoride ion from reaching the pulp. Therefore, there is no known reason to refrain from using SnF_2 as a caries preventive agent in mouths containing carious teeth.

The point of this explanation is that the original article was misunderstood by some readers:
a) SnF_2 is not considered an acceptable obtundant for use in freshly prepared cavities for relief of postoperative pulpal sensitivity.
b) SnF_2 is considered an acceptable cariostatic agent for use in mouths containing carious teeth.

c) Bureau of Medicine and Surgery policy supports the use of SnF_2 as a caries preventive measure, as described in the original article.

——Dental Division, BUMED

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Intraoral Roentgenography

In an effort to ensure the most efficient type of dental roentgenographic service, a survey of the various techniques being employed at naval dental facilities was conducted recently. The survey disclosed that a wide variety of techniques is now in use including the bisected-angle technique with either an 8 or a 16-inch target-film distance, the parallel film placement technique with an extended cone, and a fixed-time technique whereby kilovoltages are varied according to the density of the oral structures.

Establishment of Policy. The survey revealed that a technique employing both parallel film placement and a fixed exposure time with varying kilovoltages produced roentgenograms of the highest quality. Consequently, the Dental Division of the Bureau of Medicine and Surgery has established the policy that this technique will be adopted at all naval dental facilities and that instruction in this procedure will be given at the schools for U. S. Naval Dental Technicians.

Bisected-Angle Technique. The bisected-angle technique depends on the projection of roentgen rays perpendicular to an imaginary plane that bisects the angle formed by the long axis of the tooth and the plane of the film. A true estimate of the position of this imaginary plane is essential, for if the angulation is incorrect, either elongation or foreshortening of the tooth image results. Unfortunately, the estimates vary. Other common faults in roentgenograms made at an 8-inch target-film distance are the shadowing of the image and geometric distortion caused by divergence of roentgen rays at that short distance. This technique therefore lacks both accuracy and consistency.

Parallel Film Placement Technique. Consistency and accuracy can be attained by positioning the film parallel to the long axis of the tooth being roentgenographed and projecting the rays perpendicular to the tooth—and consequently to the film. The two major concerns when applying the parallel film placement technique to intraoral roentgenography are (1) positioning and retaining the film parallel to the long axis of the tooth and (2) projecting the rays at a right angle to the film. This requires the use of a set of filmholders (Rinn XCP, which may be obtained commercially). These are designed to position the film so that it is parallel to the long axis of the tooth. At the same time, they indicate the alignment of the tubehead that will establish a perpendicular relationship between the rays and the film, thereby eliminating the need for estimating angulation settings for each area and also for keeping the patient's head in a specific position for all roentgenograms of each jaw.

The set consists of two instruments constructed of a cured plastic material—one for the anterior teeth and one for the posterior teeth. Basically,

each instrument is a specially constructed bite block that enables the operator to attain the optimum parallel relationship between the film and the teeth. Extending from the bite block is a rod that positively indicates the proper alignment for the tubehead of the x-ray unit. When the tubehead is properly positioned, the operator is assured that the rays are exactly perpendicular to the film. Another type of filmholder can be fashioned from a straight hemostat and a rubber bite block of the type used in general anesthesia, through which a hole has been drilled in the center of the long axis. The beaks of the hemostat are inserted through this hole as far as the hinge area. The film and a metal backing (or the stiff cardboard backing which accompanies each box of film) are then engaged by the beaks of the hemostat and are placed in the patient's mouth in a position that will parallel the film surface with the long axis of the tooth to be roentgenographed. The rubber block is adjusted as necessary, and the patient closes his mouth, engaging the block with his anterior teeth. The shank of the hemostat serves as a guide for the correct alignment of the tubehead. Although this may be used as an interim or emergency substitute, the Dental Division, BuMed policy supports purchase of the Rinn XCP instruments.

Target-Film Distance. In intraoral roentgenography, the anatomic structures, particularly in the maxillae and the anterior regions of the mandible, make it necessary to increase the object-film distance to obtain a parallel relationship. When the conventional short (8-inch) cone is used, such an increase will produce an enlargement of the image. However, this enlargement can be prevented by using an extended cone, 16 inches or more in length. Ultraspeed film must be used to compensate for the increased radiation required at this long target-film distance.

Kilovoltage and Exposure Time. In the older units, only the exposure time could be varied to provide the necessary amount of radiation; however, x-ray units now available enable the operator to vary the kilovoltage within a range of from 40 to 90 kv. p. As kilovoltage is increased, the wavelengths of the roentgen rays become shorter, and the ability of the beam to penetrate any given part completely becomes greater. With a fixed-time technique, therefore, it is imperative that higher kilovoltages be used in the thicker regions (such as the posterior maxilla) in order to ensure proper penetration and maximum tissue differentiation. Conversely, in the thinner regions (the mandibular incisors, for example) high kilovoltages are not required, and if used they would result in overpenetration. Varying the kilovoltage for the thickness of the area being roentgenographed is highly recommended. Following are suggested kilovoltages for use in intraoral roentgenography:

Region	Maxillae	Mandible
Molar	90 kv. p.	80 kv. p.
Bicuspid	80 kv. p.	75 kv. p.
Cuspid	75 kv. p.	70 kv. p.
Incisor	80 kv. p.	67 kv. p.

The milliamperage and exposure time (ma. s.) should be kept constant for each area and should be that which will produce optimum film density.

Training Film. A new motion picture, entitled "Intraoral Roentgenography: Improved Equipment and Techniques," is in production. The availability of prints of this training film will be announced in a subsequent issue of the U. S. Navy Medical News Letter. This film will describe in detail the characteristics of roentgen rays and the use of variable kilovoltage x-ray equipment and will depict the individual film placements for the extended-cone (or long-cone) parallel technique. ———Dental Division, BUMED

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Personnel and Professional Notes

News Letter Release

Fellowship Training; announcement of

A Postdoctoral Fellowship Program, consisting of 12 months duty under instruction, has been designed to augment the Dental Corps' officer education programs. The term "Postdoctoral Fellowship" is defined as a period of in-service guided learning, not contributing to accreditation. "In-service" means that the Postdoctoral Fellow will be fully occupied in the specialty. "Guided learning" means that he will work under the preceptorship of a trained specialist who will provide consultative and study guidance. "Not leading to accreditation" means that the Postdoctoral Fellowship is not intended as a step toward certification as Diplomate of a Specialty Board. Alternatively, the certificate conferred upon completion of the Postdoctoral Fellowship will qualify the Fellow for further assignment to duty in the specialty and may serve as justification for further training. (MMD 6-124 and 6-128).

Postdoctoral Fellowships are available in the fields of periodontics, prosthodontics, endodontics, oral surgery and research. Dental Officers of the Regular Navy in the ranks of Lieutenant through Commander, and who are eligible for at least one year of duty within the continental United States, may submit their application or their request for additional information to the Chief, Bureau of Medicine and Surgery.

Fifty-Second Anniversary of the U. S. Naval Dental Corps. RADM Frank M. Kyes, Assistant Chief of the Bureau of Medicine and Surgery (Dentistry) and Chief, Dental Division, extends his WELL DONE to all dental and administrative officers, and dental technicians for their efforts during this fifty-second year of the Naval Dental Corps. Appropriate festivities are in order during the week of August 22 to commemorate the fifty-second anniversary of the United States Naval Dental Corps. Activities planning such events are requested to inform this bureau for historical record purposes.

American Fund for Dental Education. In his annual report for 1963, Doctor Raymond J. Nagle, President of the American Fund for Dental Education, described another year of significant progress in voluntary support of dental education. Incorporated in 1955, the Fund was reincorporated in 1963 under its new name but with the same purpose. The new corporation was structured to facilitate both collection and distribution of funds through three divisions: Fund Raising, Grants and Allocations and Public Information division.

In its short history, the Fund has given nearly a million dollars to dental education. In 1963, grants were made to support development of teaching methods, dental student loan funds, teaching fellowships and other programs. The Fund's total 1963 income of $318,461 was contributed by the American Dental Trade Association, the American Dental Association, dental-related business and industry, individual dentists and others.

Naval Dental Officers may address their contributions to the American Fund for Dental Education, 410 N. Michigan Avenue, Chicago, Illinois 60611. In doing so, it is suggested that they identify themselves with the Naval Dental Corps.

U. S. Navy Dental Corps Continuing Education Program. The U. S. Naval Dental School, Bethesda, Maryland, begins the series of short postgraduate courses for Fiscal Year 1965 with the course, Periodontics, to be presented 28 September to 2 October 1964. The instructor will be CAPT P. F. Fedi, DC, USN.

This course consists of lectures, discussions, and clinical demonstrations. Emphasis is placed on etiology, diagnosis, early treatment, prevention, and changes in occlusal trauma. Practical approaches to eliminate the periodontal pocket are discussed. Surgical procedures are reviewed. Quotas for this course have been assigned COMONE, COMTHREE, COMFOUR, COMFIVE, COMSIX, COMNINE, PRNC, SRNC and CNATRA. This short course is open to active duty career dental officers of the Armed Forces, in accordance with these quotas established by the Bureau of Medicine and Surgery.

Applications should be received in the Bureau as early as possible, and preferably not less than four weeks prior to the commencement of the course. The Bureau Professional Advisory Board will make recommendations on all requests, and upon approval by the Surgeon General, applicants will be notified as to the final action. Those approved will be nominated for TAD or authorization orders as appropriate. Accounting data will be forwarded to the individual officers nominated for TAD orders. Staff dental officers not utilizing assigned quotas should report this information to BuMed Code 6112 one month prior to the convening date of the course. This will allow the Bureau to fill the quota from other districts.

Dental Folder DD 722-1 to Identify Current Duty Station. The attention of all dental officers is directed to BUMEDINST 6150.26 concerning the identification of current duty station on the Dental Folder, DD 722-1. The intent of this directive is to reduce the need to forward 603's to the Bureau in compliance with MANMED 6-108(3)(c).

Joint Meeting of Navy and Civilian Dentists at Argentia. CAPT N. R. Oliver DC USN, Dental Officer, Naval Station, Argentia, Newfoundland, hosted a joint meeting of his staff and 15 members of the Newfoundland Dental Society on 19 June 1964. In addition to films on "Hospital Dentistry with General Anesthesia" and "Endodontics," participants and their presentations were as follows:

CAPT N. R. Oliver DC USN	-	Talk on Fluoridation
CAPT H. W. Pierce DC USN	-	"Series of Unusual Jaw Relationships"
LT S. M. Hamilton DC USN	-	Case History of "Globulo Maxillary Cyst"
LT C. H. Julienne DC USN	-	Case History of "Extraction of all Maxillary Teeth on a Three Year Old Patient"
LCDR J. S. Kitzmiller DC USN LT J. J. Tully DC USN LT P. A. Rosenbaum DC USN LT R. B. Carmody	-	"Various Cases of Root Canal Therapy and a Dermoid Cyst"

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PREVENTIVE MEDICINE

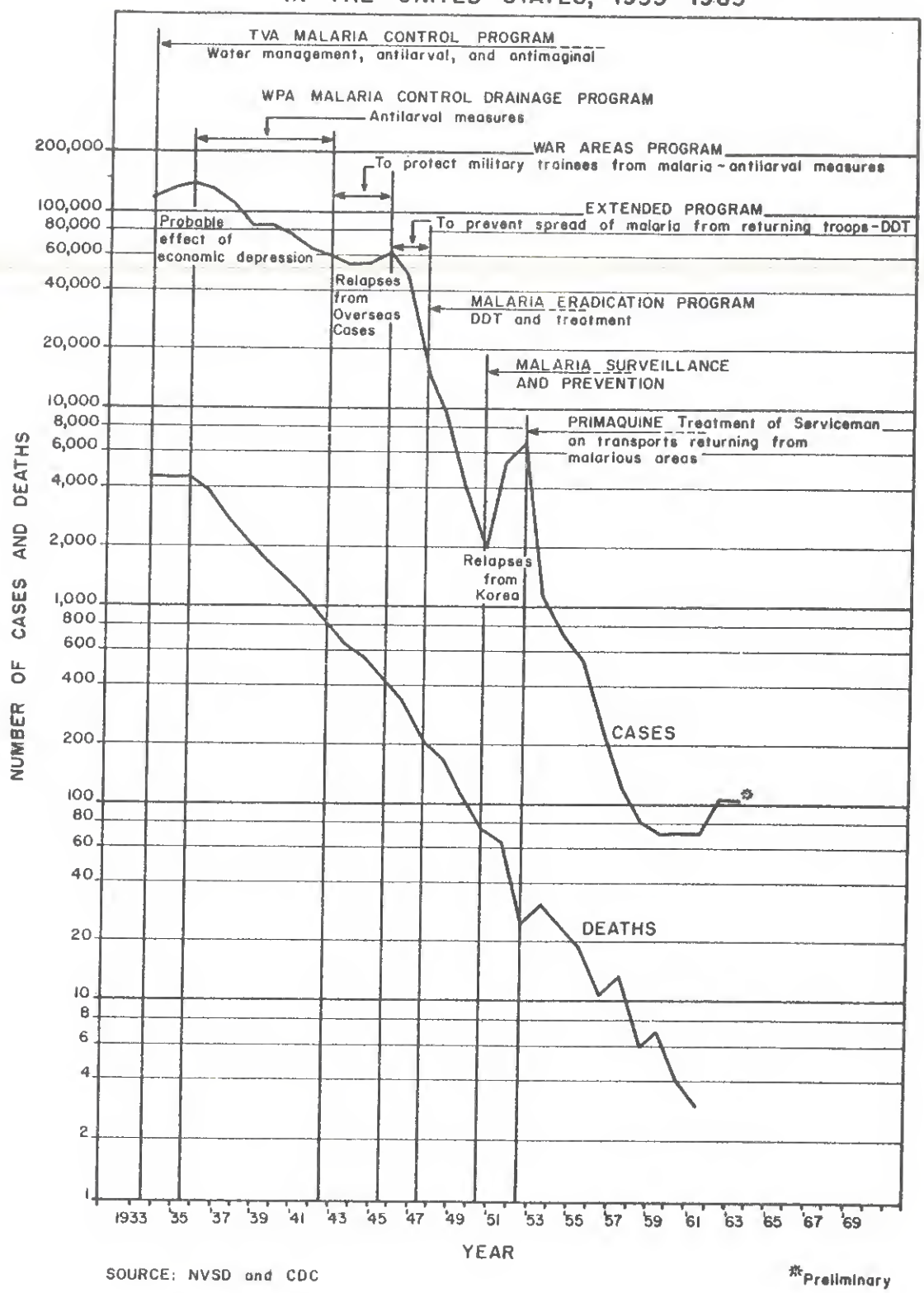
Malaria

Among the recommendations on international protection against malaria adopted by the 17th World Health Assembly, the following is of special interest to Navy and Marine Corps activities and personnel:

"The medical officers responsible for crews of ships and aircraft should be adequately trained in the diagnosis and treatment of malaria and in measures of personal prophylaxis. Operators and shipowners should ensure that all members of crews of ships and aircraft touching ports and airports in malarious areas are subjected to supervised suppressant treatment during a suitable period of time."

In this connection it would be worthwhile to review the BUMEDINST 6230.11 series on control and prevention of malaria, as well as the technical bulletin, "Malaria," NAVMED P-5052-10. For important procedures designed to control the spread of anopheline vectors of the disease, BUMEDINST 6250.2 series and Navy General Order No. 20 should be consulted. Medical Department personnel desiring more extensive information on malaria will profit by the sections in such standard textbooks as Hunter, Frye, and Swartzwelder, A Manual of Tropical Medicine, 3rd ed., 1960, Saunders, Philadelphia, and Rosenau's Textbook of Preventive Medicine, 8th ed., 1956, Maxcy. Further information, generally more up to date than in the above publications, may be obtained by addressing specific questions and requests to the Tropical Disease Branch, BUMED (Code 723).

REPORTED MALARIA MORBIDITY AND MORTALITY IN THE UNITED STATES, 1933-1963



SOURCE: NVSD and CDC

*Preliminary

Salmonella heidelberg Alert

USDHEW CDC Salmonella Surveillance Rpt. No. 25, page 8, 8 June 1964.

The incidence of Salmonella heidelberg infections in the Western States, the Rocky Mountains and Pacific Coast States, in recent weeks has been cause for some concern.

An outbreak attributed to this serotype in Utah is currently under investigation and evidence thus far compiled indicates the possible involvement of other western States. The percentage of S. heidelberg isolations from among the total salmonellae isolated in western States - Montana, Wyoming, Colorado, New Mexico and states farther west - the entire U. S., and the U. S. exclusive of the western States this year has been:

	Jan.	Feb.	Mar.	Apr.	May (1st 3 weeks)
Western States	10.6	5.4	23.9	24.9	24.7
Entire U. S.	7.1	4.8	6.7	8.1	10.5
U. S. exclusive of Western States	6.3	4.7	3.4	3.9	6.7

Therefore, it is felt important to acquire follow-up information on persons in these states with S. heidelberg infections as soon as they are identified. If a food source sold in interstate commerce is responsible, it should be identified as soon as possible.

Please forward any and all information to the Salmonella Surveillance Unit, Communicable Disease Center, USPHS, Atlanta, Georgia 30333, with copy to BuMed (Code 72).

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Smallpox

Editorial from the JAMA 187(3): 224, January 18, 1964.

In a recent report on smallpox, emphazing the possibilities of exposure and the importance of preventive measures, Leiter[1] states that"...it is possible to have the procedure of vaccination accomplished even repeatedly, without effective vaccination." This is true and may represent a more common cause of failure in the prevention of this dread disease than is generally recognized.

In routine matters, one may unwittingly become lax. Very often people are satisfied to know that a medical procedure has been performed and that there is definite proof, written or other, of its completion.

When a physician performs a primary vaccination, he personally checks the type of reaction and, before signing the certificate, makes sure that there was primary immune reaction, not some other form of reaction or infection.

Later, for the purpose of revaccination, the patient may go to another physician who does not know whether immunity was accomplished initially or whether it still persists. Then the revaccination should be considered as theoretically a primary one and evaluated as such. It is difficult to know with certainity if a visible scar represents a previous true immune reaction or if it is due to secondary infection. Further, it is not always possible to determine the accuracy of the time element, i. e., how long ago the patient was vaccinated. A certificate may accidentally be misleading; it should not always be accepted at face value.

In revaccination, interpretation of an immune reaction is more difficult than in initial vaccination. A brief skin reaction may be produced by an allergic or foreign-protein response rather than by immunologic processes. Careful evaluation of all the facts is necessary before a certificate of immunity is signed. Leiter's report stresses, further, the importance of using potent vaccine and correct vaccination procedure.

On the physician's part, any smallpox revaccination should be considered as important as the first vaccination. Without meticulous evaluation, a supposed pre-existing immunity should never be accepted as fact.

Recent developments in the field of seroprophylaxis and even in the field of chemotherapy of smallpox, it can still be stated definitely that smallpox vaccination will continue to be one of the most important preventive measures for years to come, with other methods supplementing it.

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1. Leiter, E. R. K. : Smallpox—Here? J. Occup Med 5: 486-490, Oct 1963.

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Hepatotoxic Plants

WHO Chronicle, 18(6): 223-225, June 1964.

The introduction of chemical pesticides in modern agriculture has raised the problem of the possible long-term harmful effects of the residues they leave on plants used for food. Yet long before the advent of these synthetic products, substances entering the normal composition of certain plants were probably responsible for a great deal of liver disease in livestock and humans, affecting children in particular. In tropical and subtropical countries, liver disease affects mainly children and young adults, while in the more developed countries, where the consumption of hepatotoxic plants is certainly smaller, it generally occurs in adults of 50 years and older.

The role of "natural" hepatotoxins and their public health implications are discussed in a recent paper in the Bulletin of the World Health Organization, Vol 29: 823, 1963.

Fungi. Conditions in the tropics favor the growth of fungi on food which can then acquire toxic properties. Thus the toxicity of "yellow rice" in Japan has

been traced to contamination with Penicillium islandicum Sopp., which produces at least 2 hepatotoxic compounds: luteoskyrin (a liver carcinogen), and a chlorine-containing peptide, the structure of which is still under study. The contamination with Aspergillus flavus of ground-nut meal given to turkeys and other fowl has caused considerable economic losses. Fed to rats in the laboratory, this toxic meal has induced liver lesions very similar to those due to hepatotoxic pyrrolizidine alkaloids, and primary liver tumors.

The recent recognition of these fungal hazards to health has opened up important new fields of study.

Plants. The medicinal use of certain plants—unpalatable as food, but having certain stimulating or other desired effects—dates back to man's earliest beginnings. Toxic plants with immediate effects were doubtless soon avoided by man, who failed, however, to realize the insidious long-term effects of others.

The hepatotoxic action on cattle of alkaloids containing pyrrolizidine was discovered about 50 years ago. Their toxicity for man was suspected only recently, and attention was focused on the medicinal use of certain plants containing these alkaloids. Alkaloids of this group are found in plants belonging to various genera, including: Senecio, Cytisus, Heliotropium, Cynoglossum, Trichodesma, and Echium. About 2, 000 species containing these alkaloids occur in various parts of the world. Some 200 of them have been examined chemically, and the effects of a rather smaller number have been tested in animals. Much work remains to be done in this field.

At the beginning of the present century the part played by Senecio plants in inducing liver disease in livestock—previously considered as contagious—was demonstrated. This stimulated work on the chemistry of the alkaloids present in these plants, and over the past 25 years the relationship between their chemical structure and hepatotoxic activity has been elucidated. From a comparison between the harmful and harmless alkaloids in the group, it appears that their hepatotoxicity is conditioned by two aspects of their chemical structure: (a) the double bond between carbons 1 and 2 of the pyrrolizidine moiety—for example, platyphilline and senecionine, which differ only in that the latter has the double bond, are respectively harmless and hepatotoxic;[1] (b) the primary allylic hydroxyl esterified with a branched-chain acid, not readily hydrolyzable by the body's enzymes.

The various hepatotoxic alkaloids produce similar chronic lesions in rats, their character depending on the susceptibility of the animal. The effective dose of a particular alkaloid depends on its structure and varies between 30-50 and 300-500 mg/kg body weight. The hepatotoxic alkaloids have produced liver injury in all the species of animals in which they have been tested (rats, mice, hamsters, rabbits, chickens, and monkeys), and perhaps in man too, as he may be susceptible to them. It is therefore of interest to note that plants containing these alkaloids have been recommended for medicinal purposes, and are listed in many herbals and materia medical books. The use of some of these plants continues to the present day in various countries of Africa, Australasia, Asia, and Europe.

A particular plant may contain 1 or more related alkaloids, often accompanied by their respective oxidation products (N-oxides), which also have a chronic hepatotoxic action;these products make the plants more palatable so that they are more likely to be consumed by livestock. The alkaloidal content may vary in different parts of the plant, being generally higher in roots and seeds than in stems and leaves. It may also vary according to the season, the soil, and the state of growth of the plant. Pyrrolizidine alkaloids have another peculiarity: a single dose is enough to affect the liver, but has little or no effect on the central nervous system. These alkaloids interact with certain constituents of parenchymal liver cells in a way that leads to irreversible and progressive changes. Large doses can produce acute liver damage, centrilobar necrosis, lung edema, and the death of the animal within a few days. If weanling rats are given doses that cause 30% of them to die from acute liver damage, the remaining rats may survive up to 2 1/2 years, or more. The liver damage to these survivors varies in extent, and may consist only of a few enlarged cells or slight periportal infiltration. On the other hand, they may develop obvious liver disease, with rapid loss of weight or ascites and distended abdomen. At death the livers may be nodular, with varying degrees of fibrosis. Hepatomas develop only occasionally after a single dose;more often they develop after repeated intermittent administration of small doses. However, the optimal condition for the development of liver tumors following ingestion of these alkaloids has not yet been determined.

Little is known about the mechanism of action of the alkaloids. The development of characteristic large cells in the liver and the lung suggest that they interfere with cell division. Sex, age, and diet are among the factors on which susceptibility to the alkaloids depends. Male rats are more susceptible than female, young rats than adults, and those with protein deficiencies than those that are well fed. Female rats, while remaining unscathed themselves, may pass a toxic factor on in their milk, so that their young are affected. Hepatotoxins of Aspergillus flavus are excreted in the milk of cows fed on toxic ground-nut meal; when absorbed by pregnant animals, they may have teratogenic effects on the fetus.

Public Health Implications. The discovery of hepatotoxic compounds in certain plants suggests that other toxic substances may be contained in natural products, and that these may be responsible for various diseases of mysterious origin that occur in unsophisticated pastoral communities, e.g., onyalay, kuru in New Guinea (WHO Chronicle 18:25, 1964), Kaposi's sarcoma, Burkett's sarcoma in African children, and amyotrophic lateral sclerosis in Guam.

From what is known of the action of hepatotoxic substances, it is in children, who are much more susceptible than adults, that the causative agents of liver disease should be sought. The early age at which such diseases as cirrhosis of the liver and primary liver tumors occur in unsophisticated communities points to factors operating either in utero or postpartem.

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1. Schoental, R., Proc Roy Soc Med 53: 284, 1960.

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Chimpanzee-Associated Hepatitis - 1963

USDHEW PHS Morb and Mort Wkly Rpt 13(21): 174, 29 May 1964.

During 1963, 13 cases of infectious hepatitis in the United States, traced epidemiologically to exposure to non-human primates, were reported to the Hepatitis Surveillance Unit, CDC. Three outbreaks were responsible for 11 of these 13 cases.

The first outbreak (cases 1-5) occurred at a university in Oklahoma, according to the Communicable Disease Control and Laboratory Services, Oklahoma State Department of Health. In early November, 2 chimpanzees were shipped from Sierra Leone via the West Coast to a psychologist; they were housed in animal quarters adjacent to his home. Because one of the animals had a severe respiratory infection, contact with humans was limited to those necessarily involved in the care of animals. Between 26 December 1962 and 17 January 1963, 5 of the 7 persons who did have close contact with the chimpanzees developed hepatitis. One of the psychologists, who remained well, was believed to have had icteric hepatitis at age 12. Investigators were unable to trace these cases to any other possible common source.

The second outbreak (cases 6-8) involved 3 of 26 animal handlers and veterinarians at a U. S. Army Base. Two importers shipped a total of 26 chimpanzees to the base during March. In late April and early May, 2 officers and 1 enlisted man, all closely involved in the care of these animals, developed infectious hepatitis. No other common source could be found to account for this outbreak.

Case 9 occurred 5 1/2 months later at the same Army base—an animal caretaker who began work in July—and was not exposed to any of the animals responsible for the earlier outbreak. A new shipment of chimpanzees had arrived in August; this man was the only one of 10 individuals exposed who developed hepatitis. Some of these same workers, however, were exposed to the earlier shipment and had received immune globulin injections in May.

Case 10 was a young New Yorker who worked for the importer supplying chimpanzees to the above Army base. Although he regularly handled chimpanzees, he began work in April, well after the initial shipments had been made. Because of hepatitis he stopped work in early June, before the animals shipped in August to the Army base would have arrived at the importing house.

The last outbreak (cases 11-13) occurred at an Air Force base where chimpanzees are used in psychological and space research. Case 11 had been hospitalized in November 1961, because of an elevated SGOT which was found during a survey of all veterinary personnel, prompted by the occurrence of several cases of chimpanzee-associated hepatitis at that time. His second illness, in 1963, was severe and prolonged. Although 7 separate shipments of young chimpanzees were made to this institution during early 1963, the 3 cases were compatible with exposure to a single shipment in May.

Since the original report by Hillis[1] in 1961, in which 11 of 21 animal

handlers and veterinarians developed hepatitis following exposure to recently imported chimpanzees, an additional 76 cases of hepatitis occurring after exposure to these and other non-human primates have been collected through the cooperation of State Health Departments and the Division of Foreign Quarantine, U. S. P. H. S.

The repetitive occurrence of these outbreaks lends credence to the idea that, under proper circumstances, certain species of newly-imported primates can transmit hepatitis to humans. No instances are known of such transmission involving animals which had been in the United States for longer than 6 months.

1. Hillis, William D.: An Outbreak of Infectious Hepatitis Among Chimpanzee Handlers at a U. S. Air Force Base. Am. J. Hyg. 73: 316, 1961.

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Meningitis (Listeria) in Newfoundland

Chief Medical Health Officer, Epidemiology Div., Dept of National Health and Welfare of Canada. Epid. Bull. 7(3): 31-32 March 1963.

A 5-week old male infant was admitted to the isolation wing of the St. John's General Hospital, Newfoundland, on 21 January 1963, with a provisional diagnosis of meningitis. The infant had become ill with fever, 2 to 3 days prior to admission to the hospital. On examination, he had a temperature of 103° F., neck rigidity, bulging fontanelle and generalized convulsions. Direct examination of the cerebrospinal fluid detected no organisms; however, overnight incubation of a small specimen of the fluid at room temperature revealed many small and evenly stained gram positive bacilli with rounded ends. Culture yielded a moderate growth of Listeria monocytogenes.

This was an only child, normally delivered at full term, with a birth weight of 6 lbs. 7 ozs. The small family lived in substandard housing in the fringe area of the city of St. John's. There were no pets or animals, and no rats or mice had been seen in the house. About 10 days before the infant's illness, 2 rabbits (snow shoe hares imported frozen from New Brunswick) had been purchased from a store and were skinned and plucked in the house prior to consumption by the parents. Listeria antibody titers were 1:40 for father and 1:60 for the mother.

This is the third case of Listeria meningitis in an infant diagnosed in this province since 1957. Listeria monocytogenes caused an epidemic among dogs in Labrador and has also been isolated from snow shoe hares in this province.

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DID YOU KNOW:

That through the summer of 1963, the encephalitis virus was very active in the Midwest of the United States?

More than 700 cases were reported in horses, in the states of North Dakota, Minnesota, Iowa, South Dakota, Nebraska, Kansas and Missouri. The virus isolated in nearly all of these states proved to be Western Encephalitis. The states will be watching encephalitis very closely during the coming season. (1)

That 51 cases of poliomyelitis had been recorded in the Bahamas as of 20 June 1964?

The outbreak, which began in mid-March 1964, reached its highest incidence during the first half of April. Type I poliovirus was identified as the etiologic agent. The second feeding of the trivalent vaccine has been carried out, and 59,498 (71.4%) of the population in New Providence Island, and 45,077 (93%) of the population in the Out Islands have been vaccinated. (2)

That 28 imported cases of dengue fever were reported by 8 States during the latter part of 1963 and early 1964 in individuals who acquired the disease while in the Caribbean?

Eleven of the afflicted appear to have acquired the disease in Puerto Rico, 10 in Jamaica, 3 in the Virgin Islands and 1 in Antigua in the Lesser Antilles. One patient had visited Puerto Rico and the Virgin Islands. Of the Jamaican cases, 9 were among members of 2 families. The majority of cases had dates of onset in July, August, and September when dengue was frequently reported in Jamaica and Puerto Rico. No imported cases have been reported with onsets later than March.

Of cases with available clinical data, all experienced fever, from 101° to 106° F., headache, orbital and muscular pain, 19 of 24 had a skin rash. Serological confirmation was available for 14 of the patients; all recovered without known sequelae.

Without question, the 28 cases represent but a fraction of the actual number which have occurred in the United States. Many have probably not been recognized as dengue, even among those who sought medical attention. The absence of reports of imported cases over the past 4 months suggests that the dengue incidence has abated in the principal Caribbean tourist areas. This is substantiated by reports from these areas. (3)

That confirmed jungle yellow fever was reported from Mengo District

(Buganda Province), Uganda, in a patient who died in May, 1964?

This is the first case of human yellow fever reported in an East African country in more than 10 years. The last one in Uganda was from another Province in 1952. (4)

That on 2 January 1962, a single specimen of Aedes vexans nocturnus (Theobald) was found in a light-trap catch at the Public Health Service Quarantine Station in Honolulu?

This, an inadvertent introduction of a mosquito species into Hawaii, was the first to be recognized since the turn of the century and the days of the sailing vessel. Since then, a heavy incidence of mosquito adults and larvae was discovered on the Ewa side of Pearl Harbor. Immediately civilian and military agencies moved to determine the extent of infestation and to prevent the rapid spread of the species to other parts of Oahu and neighboring islands. Later surveys showed spread of the species throughout most of Oahu from Waimanalo to Kahuku, Waialua, and Waianae; it is also established on the island of Kauai.

This species, a potential vector of Japanese "B" encephalitis, has been intercepted a number of times on aircraft through quarantine inspection. The source of introduction may be Guam, Samoa, Fiji, Philippines, or the Marshall Islands, since all have ports of departure for aircraft and ships coming to Hawaii.

Mosquitoes were unknown in Hawaii until 1826. Today, Aedes aegypti, A. albopictus, A. vexans nocturnus, Culex quinquefasciatus, and two purposely introduced Toxorhynchites species are present. (Larvae of Toxorhynchites mosquitoes are predaceous on other mosquito larvae; adults are not able to feed on blood. —Editors). (5)

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2. WHO PAHO Wkly Epid Rpt XXXVI(27): 156, 1 July 1964.
3. USDHEW PHS Morbidity & Mortality Wkly Rpt 13(27): 235, 10 July 1964.
4. USDHEW PHS Morbidity & Mortality Wkly Rpt 13(27): 240, 10 July 1964.
5. USDHEW PHS Publ Hlth Rpts 79(1): 24, Jan 1964.

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In Switzerland economic losses due to tuberculosis in cattle averaged $12 million each year from 1943 to 1959. Of this annual sum, about $2.8 million represented losses due to bovine tuberculosis contracted by humans. In 1960 the disease was eradicated, and in that year the usual $12 million loss was replaced by an expenditure of less than $1.3 million on eradication procedures. —WHO Chronicle 18(7): 238, July 1964.

New Section

A LOOK AT OUR U. S. NAVAL HOSPITALS——YOKOSUKA
(First in a Series)*

The U. S. Naval Hospital, Yokosuka, Japan is located within the confines of the U. S. Naval Fleet Activities, in the city of Yokosuka, Japan which has a population of 308, 314 people and is located on the Miura Peninsula, approximately forty miles south of Tokyo. Construction by the Japanese Navy of what is now the U. S. Naval Hospital, Yokosuka was commenced on 31 March 1927 and completed on 20 February 1931. During World War II this hospital was occupied as an Imperial Japanese Navy Medical Center which included a Hospital Corps Training School and a Naval Hospital which had a normal staff of 237 and a war-time staff of 735 officers and men. The bed capacity was listed then as 578 normal, 690 maximum, and 857 emergency. The buildings in the present U. S. Naval Hospital compound are substantially the same as when it was originally constructed by the Japanese Navy.

Official U. S. Navy Photograph of U. S. Naval Hospital —Yokosuka, Japan.

* Adapted from material contained in Hospital's Briefing Brochure of May, 1964.

The general arrangement and construction made it convenient for conversion to a Fleet Activities, Yokosuka, Dispensary for our Naval Forces, when we occupied Japan. It offered valuable potential as a future U. S. Naval Hospital.

Shortly after the start of the Korean Conflict the U. S. Naval Hospital, Yokosuka was established by the Secretary of the Navy and it was commissioned on 11 September 1950. The month of December 1950 brought the hospital's greatest work load, the peak in patient census being reached on 14 December 1950 when there were 4, 388 on the sick list. Once during this period there were 2, 000 patients admitted within a 24 hour time span.

In December 1951 the Secretary of the Navy awarded the Navy Unit Citation to the U. S. NAVAL HOSPITAL, YOKOSUKA, "For extremely meritorious services in the treatment and hospitalization of 5, 804 war casualties and other patients from 5 December 1950 to 15 January 1951". Captain Walter F. James, MC, USN (later RADM rank) was the hospital's Commanding Officer at the time of the record patient load.

Some Events of 1963

The year 1963 was a busy one at the hospital and saw many changes in the hospital staff; several innovations were instituted in the various services. A brief resume by Service follows:

During 1963 there was a complete staff change of American Red Cross personnel with Miss M. E. Doehler assuming duty as Hospital Field Director in May. The staff as of 31 December 1963 consisted of a Hospital Field Director, Recreation Supervisor, Social Work Aide, Recreation Aide and a secretary hired locally. The career staff was assisted by a monthly average of 26 volunteers serving as Gray Ladies and 18 volunteers serving as staff aides in the various clinics.

The summer of 1963 marked the first time Youth Volunteers served at this Hospital on a scheduled basis. A total of seven young ladies participated in the Recreation Program in the Red Cross Offices.

The Anesthesiology Service administered 1628 anesthetics of all types without a single mortality. It has in addition been quite active in treating acute and chronic respiratory problems. When and if more personnel become available it is planned to add a complete inhalation therapy branch to this service. Modernization of equipment has included two new gas machines and the addition of an assistor-controller of the "Bird" type.

Deliveries in the Obstetrics Branch showed a 15% increase over the previous high for the past five years.

Dispensary Service handled a total of 3, 175 complete physical examinations, 1, 898 limited physicals, and 29, 841 medical clearance examinations for a grand total of 34, 194.

The emergency treatment room and sick call section took care of 26, 337 patients for conditions ranging from abdominal gunshot wounds to hangnails.

The military section gave 26,197 immunizations; the dependent section gave a total of 19,561, for a grand total of 45,758.

During "Operation Sweet Tooth", the Tri-Service Oral Polio immunization project, 16,439 pink cubes of sugar were dispensed to military, dependent and authorized civilian personnel.

Statistically the EENT Service showed approximately 25% increase in services rendered, including the following: consultations 14,523, major surgery 199, minor surgery 236, audiograms 2,836 and fabricated spectacles 8,316.

A total of 211,847 Laboratory procedures were performed during the year, 103,555 on in-patients. This represents an increase of 60,082 tests over the previous year. The Blood Bank performed 1,555 cross matches and drew 517 units of blood. A pulmonary function laboratory was established to assist in Tri-Service research into Tokyo-Yokohama Asthma.

Approval was obtained from BUMED and BUPERS for reactivation of a Psychologist Billet.

Photodosimetry was accomplished on film badges for all commands in the Far East area.

An X-Ray field unit with all accessories has been encased in an airplane engine tank for storage in the caves for emergency use.

The project for enlargement of the operating room was not expected to be completed until May 1964. Cyclomatic controls were installed on the existing autoclaves in the operating room thus allowing for automatic timing and recording of autoclaving temperatures. The recovery room was modernized by the addition of four new recovery room stretchers and two new recovery room cribs.

The Patient Affairs Division performed the following administrative services: Patient admissions 5,537, patient discharges 4,844, patient transfer via medical air evacuation system 726. Prepared birth certificates and citizenship registration documents on 688 live births. Handled 83 decedent affairs cases.

The Food Service Division served 218,025 rations at an average cost of $1.0956/ration. There were 823 complete steak dinners served to blood donors and mothers of newborns. New equipment installed: air-conditioner in diet kitchen office, coffee urn in main dining room, ice cube machine in main kitchen, dishwashing machine in scullery.

On 1 February 1963, Data Processing Machines were installed at Naval Hospital, Yokosuka. This was the first overseas naval hospital to install electrical accounting machines (EAM). The introduction of EAM equipment in naval hospitals is a significant administrative achievement directed toward improved management which in turn leads to improved patient care. On 1 May this division commenced producing EAM card data on OB, Newborns and Anesthesia cases. During the period 1 May to 31 December a new EAM inpatient statistical reporting system was phased in on an increment basis and beginning 1 January 1964 all manually produced reports were discontinued. On 1 December a daily patient report was initially produced by EAM methods. This Division has been designated by BUMED as the Regional Medical Data Processing

Support Center for all ships and stations in the Far East except Guam.

The Chief of Orthopedics, CAPTAIN G. M. RICKETSON, MC USN served as Port Liaison Officer for Project Mercury Orbital Flight.

A Pest Control Training course was presented at the Hospital by members of Preventive Medicine Unit No. 6 from 30 July through 2 August 1963. The course was attended by representatives of all major commands within Naval Forces Japan.

RADM J. L. HOLLAND, MC, USN, The Fleet Surgeon, Headquarters of the Commander in Chief, U. S. Pacific Fleet visited the hospital.

Minister John K. EMMERSON, Deputy Chief of Mission, American Embassy, Tokyo was guest speaker at graduation ceremonies. Fourteen (14) Japanese interns at the U. S. Naval Hospital, Yokosuka completed their internship on 15 March after a year of practicing, in an American operated hospital, what they learned during four years in Japanese medical schools. Interns were selected to practice in U. S. Military Hospitals by the Kanto Plain Tri-Service Committee headed by CAPT R. E. FAUCETT, MC, Chief of Medicine. Selections were made through competitive examinations held jointly by the Army, Navy, and Air Force hospitals at Camp Zama, Yokosuka and Tachikawa. This was the best class of interns since the program began in 1952.

NOTE: A progress report on the Intern Training Program and a group photo will be published in a later issue of Medical News Letter. —Editor